

Amendments To Claims

Claims 1-8 (cancelled).

9. (Currently Amended) A method for coding a set of numbers represented by a set of bit-planes having an arrangement between a highest and a lowest significance, comprising the step of generating a bit stream including a set of significance information and a set of refinement information that describes a current one of the bit-planes in terms of a tree structure having a hierarchical arrangement of leaves such that the significance information for the leaves of the tree structure are described in the bit stream in an order that is determined by an arrangement of zero values in a tree structure for the bit-plane having a next higher significance and the refinement information for the current one of the bit-planes follows the significance information for the current one of the bit-planes in the bit stream.

10. (Previously Presented) The method of claim 9, wherein the order decreases an amount of distortion reduction provided by the bit stream per bit of information in the bit stream.

11. (Currently Amended) A method for coding a set of numbers represented by a set of bit-planes having an arrangement between a highest and a lowest significance, comprising the step of generating a bit stream that describes a current one of the bit-planes in terms of a tree structure having a hierarchical arrangement of leaves such that the leaves of the tree structure are described in the bit stream in an order that is determined by an arrangement of zero values in a tree structure for the bit-plane having a next higher significance ~~The method of claim 9, wherein the step of generating a bit stream comprises the step of generating the bit stream such that each leaf in a maximum depth of the tree structure for~~

the current one of the bit-planes that corresponds to a leaf having a zero value in the tree structure for the bit-plane having the next higher significance is described in the bit stream before the leaves of the tree structure for the current one of the bit-planes that do not have a corresponding leaf in the tree structure for the bit-plane having the next higher significance.

12. (Previously Presented) The method of claim 11, wherein the leaves of the tree structure for the current one of the bit-planes that do not have the corresponding leaves in the tree structure for the bit-plane having the next higher significance are described before each leaf in a shallow depth of the tree structure for the current one of the bit-planes that corresponds to a leaf having a zero value in the tree structure for the bit-plane having the next higher significance.

13. (Currently Amended) The method of claim 11 ~~claim 9~~, wherein the step of generating a bit stream comprises the step of generating a set of significance information in response to the tree structure for the current one of the bit-planes.

14. (Previously Presented) The method of claim 13, wherein the step of generating a bit stream further comprises the step of concatenating a set of refinement information with the significance information.

15. (Previously Presented) The method of claim 14, wherein the refinement information follows the significance information in the bit stream.

16. (Previously Presented) The method of claim 15, wherein the refinement information follows the significance information and precedes a set of significance information for

a next lower one of the bit-plane having a next lower significance.

17. (Currently Amended) A coding system, comprising:

filter that generates a set of coefficients in response to an input image, the coefficients represented by a set of bit-planes having an arrangement between a highest and a lowest significance;

encoder that generates a compressed image for the input image by generating a bit stream including a set of significance information and a set of refinement information that describes each bit-plane in terms of a tree structure having a hierarchical arrangement of leaves such that the leaves of the tree structure are described in the bit stream in an order that is determined by an arrangement of zero values in a tree structure for the bit-plane having a next higher significance and the refinement information for a current one of the bit-planes follows the significance information for the current one of the bit-planes in the bit stream.

18. (Previously Presented) The coding system of claim 17, wherein the order decreases an amount of distortion reduction provided by the bit stream per bit of information in the bit stream.

19. (Currently Amended) A coding system, comprising:

filter that generates a set of coefficients in response to an input image, the coefficients represented by a set of bit-planes having an arrangement between a highest and a lowest significance;

encoder that generates a compressed image for the input image by generating a bit stream that describes each bit-plane in terms of a tree structure having a hierarchical arrangement of leaves such that the leaves of the tree structure are

described in the bit stream in an order that is determined by
an arrangement of zero values in a tree structure for the bit-
plane having a next higher significance ~~The coding system of~~
~~claim 17,~~ wherein the encoder generates the bit stream such
that each leaf in a maximum depth of the tree structure for a
current one of the bit-planes that corresponds to a leaf
having a zero value in the tree structure for the bit-plane
having the next higher significance is described in the bit
stream before the leaves of the tree structure for the current
one of the bit-planes that do not have a corresponding leaf in
the tree structure for the bit-plane having the next higher
significance.

20. (Previously Presented) The coding system of claim 19,
wherein the encoder describes the leaves of the tree structure
for the current one of the bit-planes that do not have the
corresponding leaves in the tree structure for the bit-plane
having the next higher significance before describing each
leaf in a shallow depth of the tree structure for the current
one of the bit-planes that corresponds to a leaf having a zero
value in the tree structure for the bit-plane having the next
higher significance.

21. (Currently Amended) The coding system of claim 19 ~~17~~,
wherein the encoder generates a set of significance
information in response to the tree structure for each of the
bit-planes.

22. (Previously Presented) The coding system of claim 21,
wherein the encoder concatenates a set of refinement
information with the significance information.

23. (Previously Presented) The coding system of claim 22,
wherein the refinement information follows the significance
information in the bit stream.

24. (Currently Amended) An apparatus for coding a set of numbers represented by a set of bit-planes having an arrangement between a highest and a lowest significance, comprising means for generating a bit stream including a set of significance information and a set of refinement information that describes a current one of the bit-planes in terms of a tree structure having a hierarchical arrangement of leaves such that the leaves of the tree structure are described in the bit stream in an order that is determined by an arrangement of zero values in a tree structure for the bit-plane having a next higher significance and the refinement information for the current one of the bit-planes follows the significance information for the current one of the bit-planes in the bit stream.

25. (Previously Presented) The apparatus of claim 24, wherein the order decreases an amount of distortion reduction provided by the bit stream per bit of information in the bit stream.

26. (Currently Amended) An apparatus for coding a set of numbers represented by a set of bit-planes having an arrangement between a highest and a lowest significance, comprising means for generating a bit stream that describes a current one of the bit-planes in terms of a tree structure having a hierarchical arrangement of leaves such that the leaves of the tree structure are described in the bit stream in an order that is determined by an arrangement of zero values in a tree structure for the bit-plane having a next higher significance ~~The apparatus of claim 24, wherein the means for generating a bit stream comprises means for generating the bit stream such that each leaf in a maximum depth of the tree structure for the current one of the bit-planes that corresponds to a leaf having a zero value in the tree structure for the bit-plane having the next higher~~

significance is described in the bit stream before the leaves of the tree structure for the current one of the bit-planes that do not have a corresponding leaf in the tree structure for the bit-plane having the next higher significance.

27. (Previously Presented) The apparatus of claim 26, wherein the leaves of the tree structure for the current one of the bit-planes that do not have the corresponding leaves in the tree structure for the bit-plane having the next higher significance are described before each leaf in a shallow depth of the tree structure for the current one of the bit-planes that corresponds to a leaf having a zero value in the tree structure for the bit-plane having the next higher significance.

28. (Currently Amended) The apparatus of claim 26 24, wherein the means for generating a bit stream comprises means for generating a set of significance information in response to the tree structure for the current one of the bit-planes and means for concatenating a set of refinement information with the significance information.